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Environmental Assessment

Troublesome Analysis Area

**Parks Ranger District, Routt National Forest
Jackson County, Colorado**

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SUMMARY

The Routt National Forest proposes to continue permitting livestock grazing on the Troublesome, Grass, Monument, and Pete Gulch allotments. The project area is located in the Troublesome Geographic Area and is administered by the Parks Ranger District, Routt National Forest, Colorado. This action is needed, because the grazing allotments are currently authorized for livestock grazing with an existing allotment management plan (AMP), however, they do not have a current NEPA analysis associated with a current AMP.

The proposed action may benefit the local community and provide an opportunity to sustain agriculture as a part of the local economy. It will also fulfill the Forest Service mission of managing for multiple use as mandated in the Multiple-Use Sustained-Yield Act of 1960.

In addition to the proposed action, the Forest Service also evaluated the following alternative:

- *No livestock grazing would be authorized on any of the allotments included in the Analysis Area.*

Based upon the effects of the alternatives, the responsible official will decide:

Whether or not livestock grazing will continue to be permitted on NFS lands in the Troublesome, Monument, Pete Gulch, and Grass allotments, and 2) if grazing is permitted, what specific livestock and vegetation management actions will be implemented.

INTRODUCTION

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by the Parks Ranger District. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

The most relevant information on each affected environment is contained in this document. Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Parks Ranger District Office in Walden.

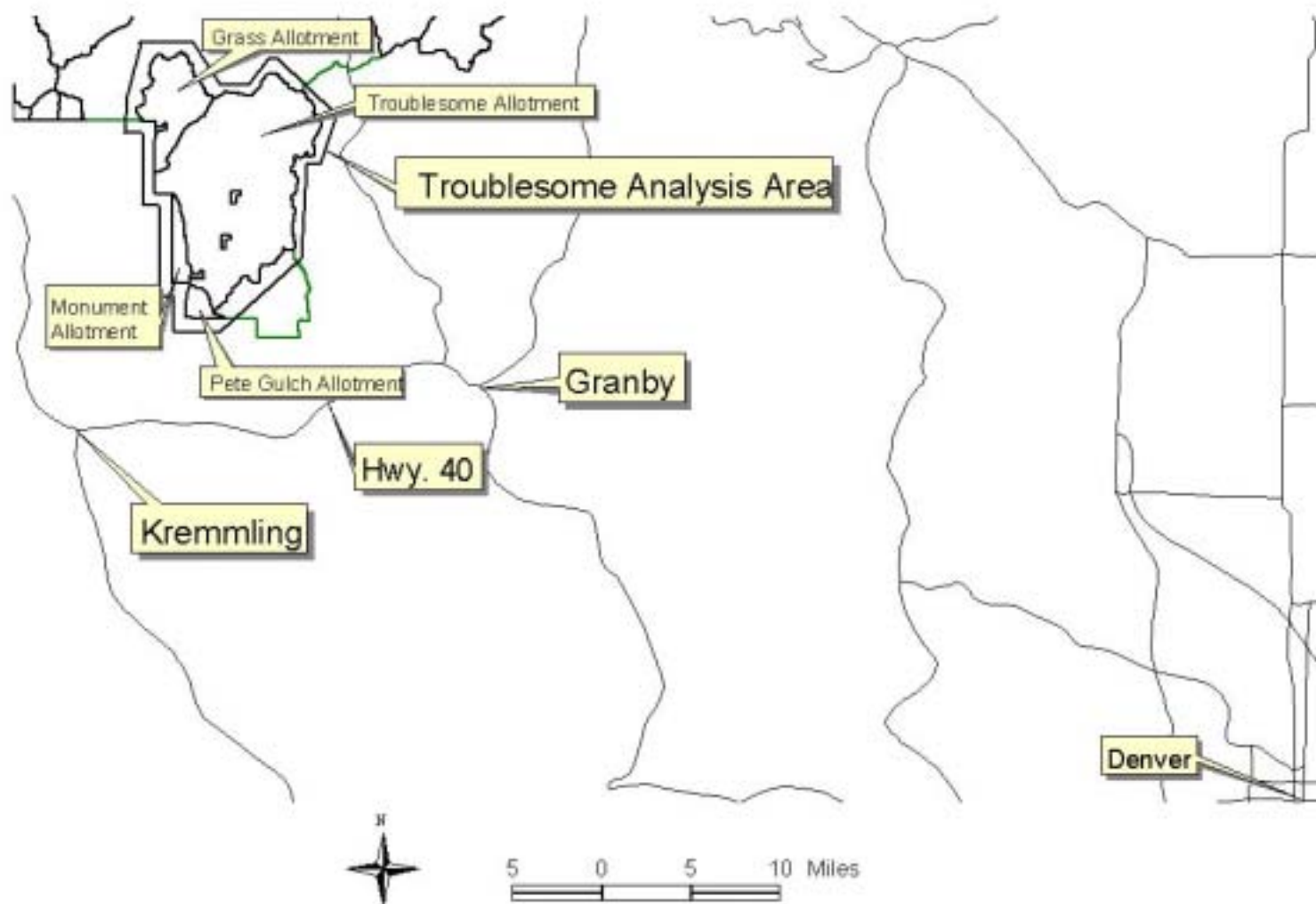
Background

Project Area Location and Description

The Troublesome Analysis Area is located on the Parks District on National Forest System lands approximately 15 miles north of Kremmling, Colorado (see map page 3). It

encompasses approximately 56,700 acres in Townships 2 through 5 North and Ranges 78, 79, and 80 West, 6th Principal Meridian in Grand County, Colorado.

MAP 1 - Troublesome Analysis Area



Troublesome allotment. The proposed action is to continue rotation of 310 cow/calf pairs on six grazing units from July 1 to October 5.

Grazing records indicate that between the years 1940 and 1976 permitted numbers on the Troublesome allotment varied between 689 to 860 cow/calf pairs. During this time cattle were grazed season long and, due to poor distribution, the creek bottoms were badly depleted of primary forage. In 1977 the permitted number was reduced to 589 pair (1886 Animal Months) in order to reduce grazing pressure. Attempts were made to rotate cattle through nine grazing units. Range analysis conducted on the allotment in 1978 estimated the grazing capacity at 390 cow/calf pairs or 1244 Animal Months. In 1995 livestock numbers were reduced from 591 pair down to 260. Since that time a full time rider(s) has been required and, due to improvement in range condition, a temporary increase of 50 pair was authorized in 1998. The current permitted number is 260 pair from July 1 through October 5 for 989 Animal Months. Total allotment acreage is 44,939 acres with 7,689 acres of primary range.

Some aspects of the monitoring procedures used in 1978 have been replaced with similar, yet more effective, methodology. Monitoring data were collected in 1999 in the Troublesome allotment using methodology contained in the Rangeland Analysis and Management Training Guide, published in 1996. Although the information gathered using the two different techniques cannot be compared directly, conclusions can be drawn from similar vegetative attributes recorded in the two data sets. The range condition in 1978 was rated, generally, in fair condition with a couple of sites in the good category and a couple in the poor category. It was noted that the vegetation on the slopes were not being grazed much at all, while the bottom lands were grazed beyond the maximum use levels. The presence and frequency of desirable forage species was below the desired levels for the range to be rated in good condition. Data collected in 1999 indicates that some of the desirable species are still below desired levels, but that plant species diversity and density is improving. Litter and ground cover has increased while undesirable plant species has decreased. Assuming that resource condition continues to improve, the 50 additional pair will become a permanent increase. If after 5 years, monitoring data indicates that range condition may be deteriorating, the 50 pair will be removed from the permit.

Pete Gulch allotment. The proposed action is to continue grazing with an On/Off permit which provides for grazing a total of 30 cow/calf pairs from July 15 to August 20.

Starting in 1960, this allotment had been grazed at different times with yearlings and cow/calf pairs. Pete Gulch was originally part of the Troublesome allotment until 1966 when it was split off in order to facilitate better management. The combining of FS administered land with land owned by the permittee together formed a natural grazing unit. Up until 1980 the season of use was from June 21 to October 15 with total numbers between 60 and 100. In 1980 the season of use was changed to May 15 through June 30 for a total number of 150 cow/calf pairs (225 Animal Months). Four years later the revised AMP estimated the grazing capacity at 105 Animal Months. In 1995 the

permittee took non-use for three years. Starting in 1999, with a new permittee, the permitted number is 30 pair with a season of use from July 15 to August 20 (36 Animal Months). Currently there are no resource concerns on this allotment with all areas at the desired vegetative condition. The allotment was grazed in 1999, but has not been grazed with livestock through 2002. Since the majority of land associated with this allotment is private, the permit has a special provision for on and off grazing. Total acreage is 4,188 acres with 1,563 acres on FS land. Of the FS land only 628 acres are primary range, which is approximately 15% of the total suitable acreage.

Grass allotment. The proposed action is to continue grazing with a lighter stocking rate and a change in permit status.

Since 1940 this allotment has been grazed season long with 75 cow/calf pairs from July 16 to October 15 (225 Animal Months). Non-use was taken in 1959, 1961, 1965, 1969, 1995 through 1997. The allotment has been vacant since 2000. Total acreage is 9,075 acres with 1,107 acres comprising the primary range. Nearly 90% of the allotment consists of steep slopes covered with stands of spruce/fir and lodgepole forests. The entire grazing capacity is on the main West Fork of the Troublesome Creek and associated tributaries. Records indicate an abundance of weedy forbs and undesirable grasses along the creek bottoms and evidence of soil compaction from livestock grazing. Although actual use records show consistent use of around 225 Animal Months, monitoring data and field notes indicate that the stocking rate should be considerably less. The 1972 AMP estimates the grazing capacity at 126 Animal Months or 52 head from July 15 to September 27.

Monument allotment. The proposed action is to continue grazing with the On /Off permit which provides for grazing a total of 170 cow/calf pairs for the grazing period of July 1 to September 30 (see Table 1). Permits with On-and-Off provisions are issued when a minor portion, usually less than 1/3, of a logical grazing area is composed of NFS lands. The intent is to promote efficient use of intermingled ownership, while at the same time achieving desired conditions on NFS lands.

This allotment, which is comprised of Forest Service administered land and land controlled by the permittee together, forms a natural grazing unit. The use of the livestock will be approximately three percent on Forest Service administered land and ninety seven percent BLM and State lands leased by the permittee. The FS lands comprise 2,260 acres of the total, of which, only 230 acres are suitable for grazing. The stocking rate on FS lands is at 5 cow/calf pair with the remaining 165 pair on BLM and State lands. Currently there are no resource concerns on the FS lands.

In general, the use and management of the area has been for dispersed recreation, timber management, and livestock management. See Appendix A of the Routt National Forest Land and Resource Management Plan, Forest Plan direction.

The Troublesome Analysis Area (TGA) livestock grazing allotments area are divided into four Management Areas. The following table displays the Management Areas, as well as Management Area acres, followed by a summary of the allotments (see map 2 on page 6).

Table 1. Management Areas and Management Area Acres, TGA.

Management Area	Troublesome Allotment (Ac.)	Monument Allotment (Ac.)	Pete Gulch Allotment (Ac.)	Grass Allotment (Ac.)	Total Acres	Percent of Area
1.32 Backcountry Recreation, Nonmotorized	43,203	1,246	148	3,372	47,856	84
5.11 General Forest/Rangelands - Forest Vegetation Emphasis	89	0	0	5,688	6,080	11
5.13 Forest Products	153	0	330	19	66	<1
5.41 Deer and Elk Winter Range	1,494	1,014	1,243	0	2,716	5
Nonfederal land and Miscellaneous	-	-	-	-	49 791	1
TOTAL	44,939	2,260	1,545	9,079	57,999	100

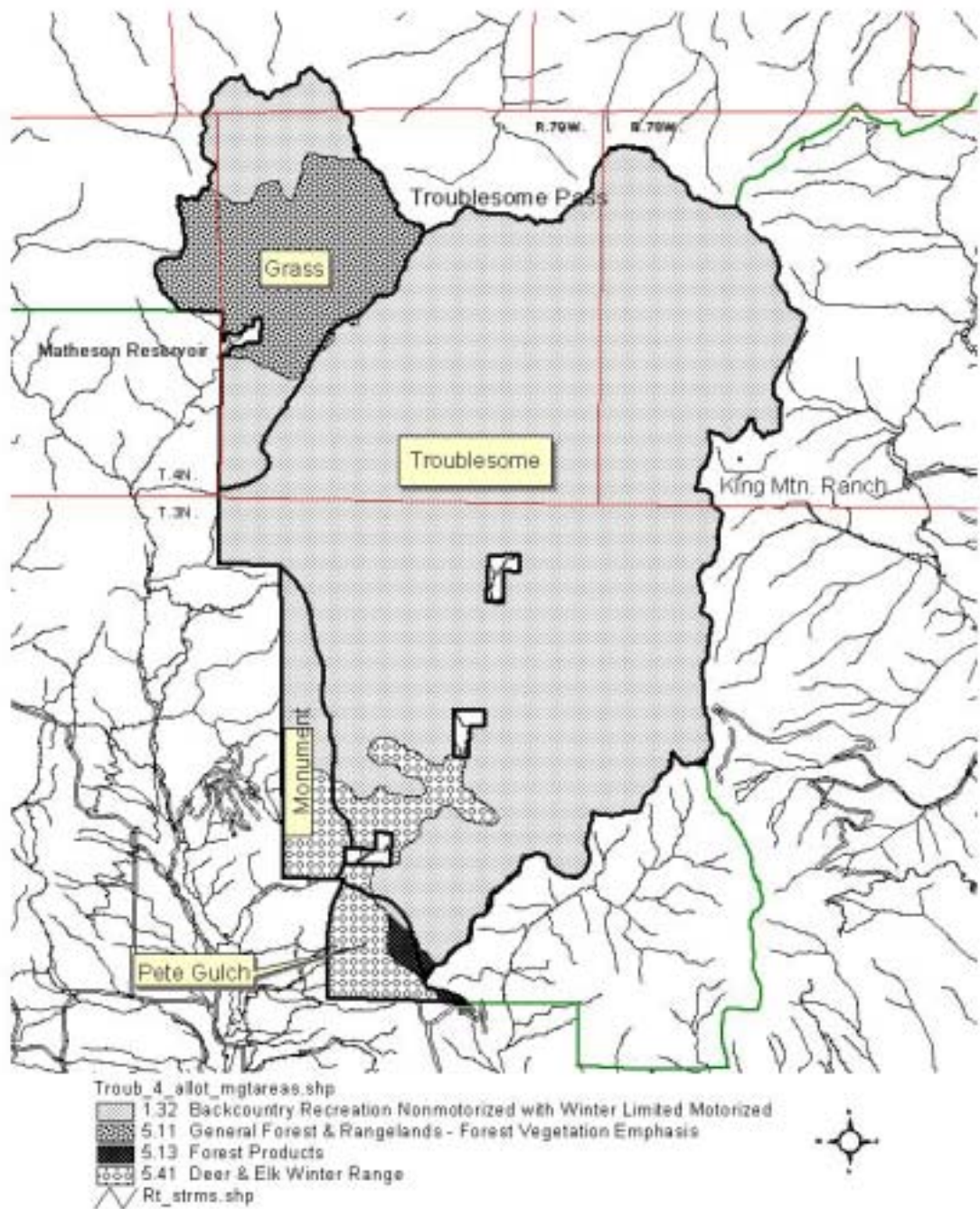
Purpose and Need for Action

The purpose of this initiative is to achieve the goal, objectives, and desired condition in the Troublesome Analysis Area, as identified on pages 1-1 through 1-10 of the Forest Plan Revision. This action is needed to meet Section 504 of Public Law 104-19 which directs the Forest Service to complete NEPA analyses on existing livestock grazing allotments. Public Law 104-19 was signed into law on July 27, 1995 following the passage of the 1995 Rescission Bill. This action responds to the goals and objectives outlined in the Routt National Forest, and helps move the project area towards desired conditions described in that plan (Land & Resource Management Plan, 1997 Revision).

Proposed Action

The action proposed by the Forest Service to meet the purpose and need is to continue the current grazing management on the Troublesome, Monument, and Pete Gulch grazing allotments, with an emphasis on maintaining riders on the Troublesome allotment to improve livestock distribution. The grazing capacity on the Grass allotment will be set at 126 animal months and it will not be attached to a term grazing permit, but will be designated as a reserve common allotment. It will be available to nearby permittees

MAP 2 - Troublesome Management
Areas and Allotments



when grazing is deferred in their allotment due to range improvement projects, fire, or other treatments.

Decision Framework

Given the purpose and need, the deciding official reviews the proposed action and the other alternatives in order to make the following decisions:

1) Whether or not livestock grazing will continue to be permitted to graze on NFS lands in the Troublesome, Monument, Pete Gulch, and Grass allotments, and 2) if grazing is permitted, what specific livestock and vegetation management actions will be implemented. An interdisciplinary team of resource management specialists has completed the analysis. The decision will include the site-specific actions that can occur, any mitigation measures needed to minimize potential adverse effects, and the appropriate level of site-specific effectiveness and Forest Plan compliance monitoring that will occur. The analysis is documented in this environmental assessment (EA).

Public Involvement

The proposal was listed in the Schedule of Proposed Actions on 07/10/02. The proposal was provided to the public and other agencies for comment during scoping from December 3, 2002 to January 14, 2003. In addition, as part of the public involvement process, the agency sent out scoping letters to those who were thought to be interested parties on December 3, 2002 and placed public announcements in the Jackson County Star in Jackson County and the Middle Park Times in Grand County, where the allotments are located.

Using the comments from the public, other agencies, and the Southern Ute Indian Tribe, the interdisciplinary team developed a list of issues to address.

Issues

Key, or "significant" issues were defined as those that were consistently raised during the scoping process and in IDT meetings. Other, "non-significant" issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)". A list of non-significant issues and reasons regarding their categorization as non-significant may be found at the Parks District, in the project record.

KEY ISSUES

The Interdisciplinary Team identified 2 recurring topics raised during the scoping process. These issues are:

Issue #1. Recreation. There is an increased demand for recreational use and there is concern that livestock grazing conflicts with recreation uses (specifically, conflicts with guide and outfitters during the elk hunting seasons). Outfitters have complained that livestock graze all of the available forage during the summer and none is left to keep elk in the area during the rifle season in the fall. Also, they have complained that livestock eat the hay that outfitters bring in for their stock animals and that cattle knock down their tents and disrupt the camps.

Issue #2. Inadequate livestock distribution has degraded the soil, riparian, and aquatic condition on some sections of streams. The greatest concern is soil compaction, poor plant vigor, and presence of upland plant species along the greenline of some of the stream reaches.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Troublesome Analysis Area. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternatives

Alternative 1

No Grazing

Under the No grazing alternative, no cattle would be authorized to graze on the allotments, no rider(s) required, and no range improvements would be necessary.

Alternative 2

The Proposed Action

The proposed action is the analysis of four grazing allotments and management alternatives in the Troublesome Geographic Area. Upon completing the NEPA analysis, a new AMP for each allotment will be generated. The allotments included in the analysis area are Troublesome, Monument, Pete Gulch, and Grass. Livestock grazing will continue to be authorized in all four allotments. The following site-specific actions will be included in the AMPs:

- a. Continue to authorize the existing livestock grazing use as follows:

ALLOTMENT	SEASON OF USE	LIVESTOCK NUMBER & KIND	ANIMAL MONTHS
Troublesome	7/1-10/5	310 cow/calf	989

Monument	7/1-9/30	5 cow/calf	15
Pete Gulch	7/15-8/20	30 cow/calf	36
Grass	7/15-8/31	80 cow/calf	126

b. Continue the grazing management currently in practice. On the Troublesome allotment, cattle will enter the allotment from the south, which is the only feasible route into and out of the area. Once inside the allotment, livestock will be moved in a clockwise rotation one year and then a counter-clockwise rotation the next year. This system allows for a rest every other year on pastures 1, 2, 5, and 6, however, portions of number 3 and 4 pasture in the middle gets used the same time every year. For this reason, portions of pastures 3 and 4 will be left ungrazed every third year so that the forage plants in these areas receive a rest. During dry years, this may cause the permittee to come off of the allotment a few days early, but on normal or years with above average precipitation, no change in the season of use should be required.

c. The grazing capacity in the Grass allotment will be reduced from 225 AUMs to 126. The Grass allotment will continue to be open for grazing, however, the allotment will not be attached to a term permit. It will be held, instead, as a reserve common allotment for use by nearby permittees, when grazing is deferred in their allotment due to range improvements, fire, or other treatments.

Management in the Monument and Pete Gulch allotments will not change.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2. Effect on the issues by the alternatives.

	Issue 1: Recreation Conflicts	Issue 2: Soil, Riparian, and Aquatic Concerns.
Alternative 1. No Grazing	Eliminate potential for cattle to knock down tents and eat outfitter hay. Increase elk and deer forage. Elk may or may not stay in hunting areas longer.	No potential for impacts to soil-riparian-aquatic resource from livestock grazing. Existing condition would move toward the desired condition. Potential increase in big game numbers will increase potential for damage to soil- riparian-aquatic resource by wild ungulates.
Alternative 2. Proposed Action	The potential for livestock/recreation conflict will still exist, but with effective riders, incidences should be less frequent. Elk and deer populations will be held in check. No predictable change in elk movements.	The soil-riparian-aquatic resource will continue to improve with the required rider and rotation system, although movement toward the desired condition would be at a slower rate.

Table 3. Comparison of the proposed action and the alternative.

	Alternative 1	Alternative 2
Authorized Grazing for Troublesome Allotment	None authorized	310 cow/calf pairs for 9/1-10/5 with rider(s) required
Authorized Grazing for Monument Allotment	None authorized	5 cow/calf pair for 7/1-9/30
Authorized Grazing for Pete Gulch Allotment	None authorized	30 cow/calf pair for 7/15-8/20
Authorized Grazing for Grass Allotment	None authorized	80 cow/calf pair for 7/15-8/31

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above. For more detailed information about each specific environment, please see the full report on file at the Parks District office.

KEY ISSUES

RECREATION

Existing Condition

The southern end of this area lies within 10-15 miles of Kremmling and Granby Colorado, small communities of 2000 ñ 6000 people. The eastern side, where most of the public access to this area exists, is about a 2-3 hour drive from the ìFront Rangeî communities including Fort Collins, Denver and Boulder, representing thousands of potential visitors to this area.

Though there is great interest in the area with potential for high visitor numbers, access to this area is very limited, thus the number of people recreating in the basin is fairly low. Reports by an adjacent recreation resort, outfitter/guides using the area, and other area visitors report low numbers of people encountered when they've been there. No quantitative visitor use numbers are available at this time, but efforts will be taken to get some idea of visitor use numbers in the next few years. The main access points available to the public are the 1) Bill Miller Trailhead, 2) Wheatley Creek Trailhead, 3) Troublesome Pass area, 4) Elk Mountain Trailhead, and 5) Trail Creek Trailhead.

The basin is predominately managed as a semi-primitive non-motorized area, and has very few roads. Although the area is predominately managed for backcountry non-motorized recreation, there are many reports of illegal motorized use. This use is primarily in the southwest part of the area (adjacent to the Bighorn Subdivision) and the area adjacent to and south of the Matheson Reservoir along the Grimes Peak trail (non-motorized use only allowed on this trail).

Desired Condition

The desired future condition for this area is ì there will be high-quality non-motorized backcountry recreation opportunities in the area allocated to backcountry prescriptionsî [the vast majority of the area]...î motorized recreation opportunities will be available in the area allocated to general forest and rangelandsî [northeast of Matheson Reservoir and in the Peteís Gulch allotment]. ì To maintain the high probability for solitude and challenge, limited public trail access will be provided.î

Environmental Consequences

Alternative 1. No Cattle Grazing

This alternative could have a positive effect on the fall hunting outfitter/guides. This would eliminate the potential for cattle to knock over tents, eat outfitter/guides provided hay, and increase forage available to elk and deer in the basin. Although livestock grazing in 2002 was at or below Forest standards and guidelines, forage normally consumed by cattle could potentially support greater elk and deer numbers.

People who donít like to see cattle or evidence of cattle in places they recreate would be supportive of this alternative, however this would probably be a small number of people.

Cattle impact is probably slight, due to cattle using only parts of the trails between foraging bouts.

Cumulative Effects

There will not be any additional cumulative effects to the recreation resources (people enjoying the area, outfitter and guide operations, trail conditions) from this alternative.

Alternative 2. Proposed Action

Some potential will still exist for cattle to knock over tents and eat outfitter/guide provided hay, since cattle distribution will remain unchanged. If riders, working for the livestock permittee, make extra efforts to keep cattle out of hunting camps, this potential for conflict will be reduced.

Cattle competing with deer and elk for forage is probably not of concern during a normal to wet growing season, however in dry or drought years, this seems to be a concern. Fall

hunting season outfitter/guides may be negatively impacted during these dry or drought years, if elk and deer move out of the basin due to lack of suitable forage.

Cumulative Effects

There will be a slight increase in trail maintenance needs due to this alternative, since cattle often travel on portions of the National Forest System trails. There may be a slight negative impact to outfitter/guide operations in the fall. Cattle grazing, in drought years in particular, combined with human hunting impacts, number of hunters in the basin, activities on surrounding private lands, and big game's ability to learn and retain movement patterns over the years, may have changed elk movements over the years. If elk move to private lands during the hunting season, as purported by the outfitter/guides in the area, this can reduce their opportunities to give clients quality hunts. If cattle eat outfitter/guide provided hay and knock over tents, this can also cumulatively cause negative impacts to their operations.

Forest Plan Consistency

Both of the alternatives are consistent with the Management Area direction (1.32 Backcountry recreation - non motorized) and the Troublesome Geographic area direction, since cattle grazing is allowed, but isn't required to occur.

Both alternatives are consistent with Forest Plan recreation standards and guidelines and Recreation Opportunity Spectrum requirements.

AQUATICS AND FISHERIES

Existing Condition

The Troublesome Range Analysis Project area lies in the Troublesome Creek, Haystack Creek, Upper East Fork Troublesome Creek and Lower East Fork Troublesome Creek sixth level planning watersheds. The East Fork Troublesome Creek, the main stream within the project area, is a tributary to Troublesome Creek, which is a tributary to the Colorado River.

The Colorado River cutthroat trout is native to tributaries in the Upper Colorado River basin. Colorado River cutthroat trout evolved in isolation from rainbow and other trout. For this reason, the subspecies is vulnerable to hybridization with rainbow trout and to replacement by brook trout and brown trout (Behnke 1992).

Streams in the project area for the most part are considered to properly functioning and in good condition. However there are isolated impacts occurring. Particular concern areas in the Troublesome Allotment include reaches of Haystack Creek, Ethel Creek, Paradise Gulch, and the East Fork of Troublesome Creek near Cow Camp. Portions of many of the streams flow through steeper forested areas that are not subject to grazing pressure.

Visual inspections in 1999 found the riparian area and stream banks on Troublesome Creek in **the Grass Allotment** to be severely impacted by livestock grazing. The reach above Matheson Reservoir was rated functional at risk with no apparent trend. Soil compaction, vegetative vigor, and presence of upland species were the greatest concerns. Due to the topography of this allotment, there are minimal options for developing a rotation system, which results in a season long grazing system. Dispersed recreation also appears to be affecting riparian conditions in isolated areas.

No aquatic concerns were identified in the Monument and Pete Gulch Allotments.

Desired Condition

The desired condition is to maintain favorable conditions of flow, preserve the physical, biological, and chemical integrity of the streams, and maintain properly functioning riparian areas. Healthy vegetation would reduce soil erosion, maintain soil productivity, and reduce delivery of fine sediment to the stream channels. Healthy watersheds exhibit desirable qualities that support productive, diverse, and stable populations of all aquatic species such as fish, amphibians and insects. Healthy watersheds also have a natural range of habitat features, such as depth of pools, composition of substrate and sequence of pools and riffles. Implementation of Forest Plan standards and guidelines (USDA 1998) and Design Criteria in the Watershed Conservation Practices Handbook (FSH 2509.25 and Appendix A) would help attain and maintain the desired condition.

Environmental Consequences

Livestock grazing can affect all components of the aquatic system (Platts, 1991). Grazing can affect the streamside environment by changing, reducing or eliminating vegetation bordering the stream. Channel morphology can be changed by accrual of sediment, alteration of channel substrate, disruption of the relation of pools to riffles and widening of the channel. The water column can be affected by increasing water temperature, nutrients and suspended sediment and by changes in the timing and volume of streamflow. Livestock can trample streambanks, causing banks to slough off, creating false or retreating banks and accelerating bank erosion.

On uplands, soil is compacted and the vegetative composition is changed, which increases runoff and erosion. Streambank stability and streamside vegetation decline when livestock concentrate near water. Maintenance of streamside vegetation is critical for providing good fish habitat because it provides habitat for terrestrial insects, which are an important food source for all fish species. Streamside vegetation also provides cover for hiding and resting and helps maintain streambank stability. The combination of upland erosion, loss of riparian canopies and breakdown of streambanks lowers local water tables and causes stream to become wider and shallower, warmer in summer but colder in winter and poorer in instream structure but richer in nutrients and bacterial populations. All these effects can adversely influence salmonid populations (Platts 1991).

Direct effects from livestock grazing may include mortality of amphibians from trampling. Indirect effects may include reduced survival of eggs and tadpoles resulting from suffocation (increased siltation and water temperatures), hydrologic changes from stock pond development, predation (loss of cover) and poisoning from fecal contamination (Loeffler 2001). A long-term indirect effect of improper livestock grazing is that of degrading riparian and wetland areas vital to amphibian existence.

Soil compaction associated with livestock grazing is also an indirect effect on amphibians. Soil compaction, that comes about from livestock activities, effects amphibians by affecting over wintering burrows (Loeffler 2001). Mitigations with respect to amphibians are listed on page 8.

Management activities contributing to cumulative effects in the area include past livestock grazing and recreation. These activities have the potential to increase stream sedimentation. Grazing will not contribute to additional adverse cumulative effects as long as riparian areas are maintained in proper functioning condition (PFC) or on an upward trend towards PFC.

Alternative 1. No Grazing

Direct, Indirect and Cumulative effects

Under this alternative, there would be no potential for impacts to riparian areas or water quality from livestock grazing in any of the allotments. Riparian conditions would remain at PFC or move towards PFC with absence of livestock grazing. Fish habitat throughout the allotments would remain in its current condition and would improve with the recovery from past management actions. Fish and amphibian populations would not be affected by this alternative.

There would be no additional adverse cumulative effects. Water yield increases from mountain pine beetle may result in stream instability, but grazing would not be a contributing factor. Forest Plan direction for the aquatic resource would be met and there would be no irreversible or irretrievable commitment of resources.

Alternative 2. Proposed Action

Under the Proposed Action, current grazing regimes in the Troublesome, Grass, Pete Gulch and Monument allotments would remain the same. Emphasis will be placed on maintaining a rider for the Troublesome Allotment to improve livestock distribution. Monitoring will be an important part of the grazing alternative. If the isolated areas do not improve over the next 5 years, livestock numbers would be reduced with the 50 head added in 1998 being removed from the permit.

Direct, indirect, and cumulative effects

Under this alternative, conditions would be similar to the existing condition in the Troublesome, Monument and Pete Gulch Allotments. Fish habitat would not change from existing condition in unaffected areas and should improve in the identified isolated

areas of concern. Fish populations would not be affected by this alternative. Water quality would remain unchanged from existing condition.

The conditions on the Grass allotment would improve with the reduction in season length and the allotment only being used when needed since use would not occur every year. The reach above Matheson Reservoir would trend toward proper functioning condition, with the rate of improvement being dependant on frequency of use. Fish habitat and fish populations would not be affected in this allotment by this alternative.

Although livestock grazing is not considered a factor in the decline of amphibian species, trampling of tadpoles and juveniles may occur. Negative impacts from livestock grazing occur in riparian habitat where amphibians and livestock are most concentrated. Maintaining riparian areas in proper functioning condition would aid in the protection of amphibian habitat. If amphibian breeding habitats are newly discovered, then additional mitigations would be designed to protect the site. Such mitigations could include buffers or change in timing of grazing. Mitigations are listed in Appendix A.

This alternative would have a slightly higher potential for cumulative effects associated with a mountain pine beetle epidemic because of the isolated areas of concern in the Troublesome Allotment are more susceptible to channel instability associated with water yield increases. As long as conditions improve, this alternative would not contribute to additional adverse cumulative effects and is consistent with Forest Plan direction for the aquatic resources. There would be no irreversible or irretrievable commitment of resources with this alternative.

RIPARIAN AREAS-HYDROLOGY

Existing Condition

The Troublesome allotment lies in the Haystack Creek (140100011202) and East Fork (140100011203) sixth level watersheds; the Grass allotment lies in the Troublesome Creek Headwaters (140100011201) sixth level watershed; Pete Gulch lies in the Lower Troublesome Creek C (140100011205) watershed; and the Monument grazing allotment lies in the East Fork sixth level watershed (Map 1). All of these watersheds are tributary to Troublesome Creek, which is a tributary to the Colorado River.

TroublesomeAllotment

The Troublesome allotment has the most extensive riparian area, along with the Grass allotment. Wetlands are incorporated into the riparian inventory and included in the total riparian acres. Livestock grazing has little direct effect on wetlands as these areas are often too wet for cattle to access. Grazing can affect wetlands, stream channels, and riparian areas if grazing results in a lowering of the water table from channel downcutting and/or riparian areas drying.

Streams in the analysis area range from stable A, B, and E channel types (Rosgen, 1994), to less stable C1 and C4 channels. The A and B channels occur more in the headwater

areas and tributaries where aspen, lodgepole, and spruce-fir are the dominant riparian communities. Due their steeper gradients, these channels are inherently stable. Livestock generally have minimal effect on these channels since there is little forage immediately adjacent to the channel in the riparian area. Consequently, these channels are generally close to or at their natural potential condition.

The lower gradient C and E channels occur in the valley bottoms. These lower gradient streams typically have wider riparian areas and are more accessible to livestock. Beaver play a large role in the development and function of these lower gradient reaches. Where beaver dams are present and stable, riparian conditions are typically good due to the high water table associated with flooding caused by the dams, and limited cattle access due to saturated conditions. Areas where beaver dams have recently failed tend to be unstable until a natural stream channel reestablishes with sufficient riparian vegetation to stabilize the streambanks during flood flows.

The flashy hydrograph is a function of the geomorphic setting, but riparian conditions and in turn stream channel stability have been affected by livestock grazing. Particular concern areas include reaches of Haystack Creek, Ethel Creek, Paradise Gulch, and the East Fork of Troublesome Creek near Cow Camp.

Pfankuch stream stability ratings (Pfankuch, 1978) from 1984 for the East Fork of Troublesome Creek, Middle Fork Creek, Siebert Creek, and McBride Creek were fair (Table Wx). The lower meadows of Ethel Creek and Timber Creek were rated good. Many of these ratings identified high runoff as a potential cause of instability, along with livestock grazing and the effects of beaver. A 1999 survey of the middle reach of Ethel Creek had a rating of 72 or good.

A greenline survey on Haystack Creek below the confluence with Middle Fork Creek had a rating of 6.6 or moderate to good. This indicates that riparian vegetation provides moderate to good protection of the streambanks during peak flows. The PFC survey rated this reach as functional at risk with an upward trend. The primary concerns identified during the PFC survey included soil compaction, overgrazing of the terrace resulting in a high abundance of upland species, and heavy browsing of the willows.

The East Fork of Troublesome above Cow Camp was also rated functional at risk on an upward trend. Primary concerns were the greenline composition (greenline rated 4.13-poor), soil compaction, and overgrazing of the terrace affecting vegetative composition, soil compaction, and infiltration.

The middle reaches of Ethel Creek were also rated functional at risk on an upward trend. Concerns include a high width-depth ratio, upland species present in the riparian area, and soil compaction. Ethel Creek is a B3 stream type, which is inherently more stable than the lower gradient C stream types. This results in a relatively high stream stability rating even though the Proper Functioning Condition survey indicates functional at risk.

Paradise Creek, Paradise Gulch, and a small tributary south show evidence of heavy grazing in isolated areas. While no formal field surveys were conducted, visual observations found that livestock grazing is affecting stream stability and riparian health.

Grass Allotment

The Grass allotment has similar geomorphic and runoff characteristics to the Troublesome allotment. Troublesome Creek is the main stream affected by livestock grazing. This stream and its tributaries comprise the valley bottom, and are surrounded by steep sideslopes. The steep sideslopes limit cattle access, and as a result grazing concentrates in the stream bottom. As can be seen on the riparian map, the majority of the riparian area in this allotment lies in the valley bottom. Visual inspections in 1999 found the riparian area and streambanks on the Troublesome Creek to be severely impacted by livestock grazing. The reach above Matheson Reservoir was rated functional at risk with no apparent trend. Soil compaction, vegetative vigor, and presence of upland species were the greatest concerns. The stream appears to be an F4 channel. A high percent of cobble in the lower banks helps to protect the stream during high flows in the absence of adequate riparian vegetation. Due to the topography of this allotment, there are minimal options for developing a rotation system, which results in a season long grazing system. Dispersed recreation also appears to be affecting riparian conditions in isolated areas.

Monument Allotment

Streams in the Monument allotment are generally steep A and B channels with aspen or willow riparian communities. Livestock impacts to the stream system are minimal due in part to the topography, and in part to the low stocking rate. Cattle spend little time in the timbered areas, and livestock grazing is not affecting riparian or stream health; no watershed or riparian concerns were identified in the Monument allotment.

Pete Gulch Allotment

Streams in this allotment are primarily steeper channels in forested settings. Riparian areas are narrow communities bordering stream channels with predominantly aspen communities. No watershed or riparian concerns were identified in the Pete Gulch allotment.

Desired Condition

The desired condition is to maintain favorable conditions of flow, preserve the physical, biological, and chemical integrity of the streams, and maintain properly functioning riparian areas. Proper functioning condition of riparian areas is a prerequisite to achieving robust stream health and desired vegetation condition (FSH 2509.25). Healthy vegetation will reduce soil erosion, maintain soil productivity, and reduce delivery of fine sediment to the stream channels. Forest Plan Standards and Guidelines (USFS, 1997),

monitoring measures, and Design Criteria in the Watershed Conservation Practices Handbook (FSH 2509.25) will help attain the desired condition (Mitigation Measures).

On a site specific basis, the desired condition would be to improve riparian conditions by reducing livestock grazing impacts in the degraded reaches identified in the Affected Environment. The desired condition would be to have all reaches continue on an upward trend and reaching proper functioning condition. In addition, greenline vegetation would improve to where sufficient riparian species are present to protect streambanks during peak flows. Healthy riparian vegetation on the greenline would improve channel stability. The desired condition would also be to have stream stability ratings (Pfankuch, 1978) in the good or excellent categories.

Environmental Consequences

Alternative 1 (No Grazing)

Direct, indirect, and cumulative effects:

Under this alternative, there would be no potential for impacts to riparian areas or water quality from livestock grazing, and the existing condition would move toward the desired condition on all four allotments. Areas currently at PFC would remain at PFC. Areas identified as functional at risk would improve, and over time reach PFC. Greenline ratings would be expected to improve on Haystack Creek and the East Fork of Troublesome. A healthy greenline improves streambank stability which would improve the Pfankuch stability ratings and move them towards good or excellent (except in localized reaches that are directly affected by beaver dams). Streams with stable streambanks are more likely to be able to accommodate increased water yields without affecting dynamic equilibrium.

There would be no additional adverse cumulative effects. Water yield increases from a mountain pine beetle may result in stream instability, but grazing would not be a contributing factor. Forest Plan direction for the water and riparian resources would be met and there would be no irreversible or irretrievable commitment of resources.

Alternative 2. Proposed Action

Direct, indirect, and cumulative effects: Troublesome, Pete Gulch, and Monument allotments

Under this alternative, there would be no changes from the existing condition on the Pete Gulch and Monument allotments. No watershed or riparian concerns were identified on these allotments.

Conditions would be expected to continue to improve on the Troublesome allotment as long as a rider is retained to improve livestock distribution. Improved distribution is critical to recovery of identified concern areas. Although conditions are expected to

improve, it would be at a slower rate than in Alternative 1. Monitoring of riparian condition and stream health would ensure that concern areas remain on an upward trend. Monitoring would include greenline and proper functioning condition surveys, and a stream reach/soil health survey in the fifth year.

Maintaining the Grass allotment as a reserve allotment with only occasional use would improve riparian and stream conditions since grazing would not occur every year. Shortening the season to six weeks versus 12 weeks would address the concern of season long grazing. The reach above Matheson Reservoir would trend toward proper functioning condition, with the rate of improvement being dependant on frequency of use.

This alternative is consistent with Forest Plan direction for the water and riparian resources on the Troublesome and Grass allotments. Forest Plan Water and Aquatic Standard 4 states "In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition (Design Criteria listed in Appendix A).¹ The proposed action would improve long-term stream health and riparian ecosystem condition in both the Troublesome and Grass allotments.

This alternative would have a slightly higher potential for cumulative effects associated with the mountain pine beetle epidemic. Although riparian conditions and stream stability are expected to continue to improve, the rate would be slower than Alternative 1. This makes the areas rated functional at risk more susceptible to channel instability associated with the beetle epidemic and increased water yields.

As long as conditions continue to improve, this alternative is consistent with Forest Plan direction, and there would be no irreversible or irretrievable commitment of resources.

SOILS

Existing Condition

This analysis area is located in the Rabbit Ears Range that separate North Park from Middle Park. This area is part of the Northern Parks and Ranges Section. It is characterized by steeply sloping mountains that are dissected by many narrow stream valleys. This area also has some gently rolling mountain and open parks and valleys.

The dominant geology is the residuum on the Middle Park Formation. This is mainly conglomerate, sandstone and shale. The next major type is Landslide deposits which is a mixture of unconsolidated surficial material and rock debris in a wide range of sizes. Dominant types of movement were rotational slides (slump) and earth flow. This geology is responsible for the hummocky landforms appearance.

Desired Condition

Soils are maintained or improved to healthy conditions so that the ecosystem they support can flourish. Healthy soils and ecosystem sustainability will be assured if soil damage such as erosion, displacement, compaction, heating and nutrients drains is kept within allowable limits.

Healthy Soils:

- Have adequate vegetation cover commensurate with site capabilities.
- Have functioning nutrient cycles through natural decay or periodic burns.
- Do not have significant nutrients drains through excessive organic removals.
- Have good infiltration (structure) and do not have hydrophobic conditions from burning.
- Have the capability of maintaining the original potential ecosystem for the long term.

Environmental Consequences

Alternative 1. No Grazing

Under this alternative there would be no impact due to livestock grazing. Areas of concern from livestock grazing would move toward desired condition.

Cumulative effects: there would be no additional effects from livestock grazing. Impacts from mountain pine beetle would be increased erosion from the increased water yield, however livestock grazing would not add to this effect. Impact from recreation use and fire will continue in this alternative. The effects of this alternative result in no irreversible or irretrievable commitment of resources.

Alternative 2. Proposed action

The direct and indirect effects of continue grazing would be that the potential for soil erosion and compaction would continue. The use of Forest Plan standards and guidelines will results in better livestock distribution and utilization. Conditions would be continue to improve in the troublesome are due to the use of the rider that has been moving cattle to improve distribution. This is important to allow the areas of concern to receive some rest during the growing season. There will be monitoring of the area of concerns at year five to determine if things area improving. This will be done with some of the stream and riparian monitoring to be done at the same time.

Cumulative Effects: Existing past and present disturbance activities within the watersheds include, grazing, fires and recreation. Grazing by both livestock and big game can be an impact to riparian and uplands vegetation as well as facilitate improvement of riparian and vegetation production. Timing and amount of grazing by pasture will greatly reduce the impact form livestock. The flashy nature of the stream system will still remove some of the beaver dams during high spring flows. Another factor in cumulative effects is mountain pine beetles. If large stands of lodgepole pine

are killed, soil erosion associated with increase water yield may increase in some of the sub watersheds in the analysis area. If, in combination with the beetles kill, a stand replacing fire would occur, there could be major impacts to the soil resources.

Grass Allotment: Under the proposed action, the Grass allotment would improve. The proposed action for the Grass allotment will be a reduction in AUMs to 126 from 225. In addition, this allotment will be designated as a reserve allotment instead of being attached to a regular term grazing permit. This means that the Grass allotment would only be grazed if another allotment could not be used for resource concerns such as fire, drought etc. This rarely occurs and such, this allotment would be essentially rested most of the time. This will result in areas of concern moving toward desired condition.

Cumulative Effects: Existing past and present disturbance activities within the watersheds include, grazing, fires and recreation. Grazing by both livestock and big game can be an impact to riparian and uplands vegetation as well as facilitate improvement of riparian and vegetation production. Timing and amount of grazing by pasture will greatly reduce the impact from livestock. The same potential for beetles impacts are here as in the Troublesome allotments. This alternative is consistent with the Forest plan, and the effects will not result in irreversible or irretrievable commitment of resources.

OTHER ISSUES

UPLAND VEGETATION

Existing Condition

The vegetation in the Analysis Area is dominated by conifer stands on numerous ridges, characterized by an overstory of dense spruce/fir and lodgepole pine forests, that drain into the East Fork of the Troublesome Creek. The conifer stands on the allotment include areas with forage in the understory and areas, with dense canopy cover or rocky terrain, without adequate forage. Small stands of aspen, with an understory of shrubs, grasses, and forbs, are scattered among the conifer stands, and at times, integrate with sagebrush slopes. Aspen also occurs in some of drainages along the numerous willow filled creeks.

Many of the southern exposed slopes support stands of sagebrush, as do the drier sites that lie between the valley floor and the conifer forests.

Most of the creek bottoms support stands of dense willow carrs, but there are also some areas of open, wet, meadows that support herbaceous species, as well as willows.

The Rocky Mountain pine bark beetle population is increasing in the Analysis Area, as well as the spruce bud-worm. In fact, the beetle and bud-worm populations have reached epidemic proportions. While this is not a desirable situation from a forest health perspective, by reducing the forest canopy on significant portions of the Analysis Area, it has the potential to increase the acreage of rangeland. This situation, of course, increases the fuelwood supply, and therefore, the risk for catastrophic wildfire increases. The impact to the range resource from wildfire, however, is beyond the scope of this analysis.

Without disturbance, conifers will become the dominant plant life form in the potential natural community. This conifer succession is occurring within the aspen and sagebrush types in the Analysis Area and is decreasing the quantity and quality of grasses, forbs, and shrubs, particularly in the aspen type. Aspen is frequently a seral state that eventually is succeeded by the spruce/fir vegetation type. The conifer expansion is happening on a district-wide scale, as well as throughout the Intermountain West. The will eventually limit the potential grazing capabilities within this allotment, as well as other allotments throughout the District.

Desired Condition

Desired conditions for upland range sites, particularly the primary range sites, are for the sites to be composed of grass, forb, and shrub species that are naturally suited to the site. The vegetation species composition is not influenced beyond the range of natural variation by livestock grazing pressures and trampling effects. Plant species that normally increase under poor range management practices are limited in the species composition. Plant production varies on an annual basis but is within 90% of potential for the soils. Soils have ground cover near potential for each site and plants show no sign of pedestalling due to current erosion processes tied to the livestock grazing activity. Livestock effects on forage vegetation may be visible but do not detract from the ability of the area to provide for other uses such as wildlife habitat and recreation uses. In addition, the Forest Plan describes the desired condition as all rangeland vegetation occurs in a mixture of seral stages, but will predominately be in upper mid-seral to late seral stages of development. The upland sites are currently in the desired condition.

The Forest Plan includes a guideline to maintain aspen, even at the expense of spruce-fir or other late-successional stands (Forest Plan, pg. 1-8). The suppression of natural disturbance regimes as well as excessive livestock grazing can facilitate this conversion. Fire suppression and large elk populations are also affecting the aspen-fir conversion. These are issues that are beginning to be addressed on a larger scale and are beyond the scope of this analysis.

Environmental Consequences

Alternative 1. No Grazing

This alternative would eliminate all livestock grazing impacts to the upland vegetation. Although elk grazing impacts would continue, current conditions would be maintained. Aspen/sagebrush type conversion would continue in the absence of other management actions.

Alternative 2. Proposed Action

Vegetative conditions in the Troublsome allotment should continue to improve. The grazing rotation and mandatory rider(s) will provide better livestock distribution and more even utilization across the landscape.

The Monument and Peter Gulch allotments will stay in the desired vegetative condition.

Reduction in the stocking rate and rest provided to the Grass allotment will move the vegetation toward a desired condition in the Grass allotment.

WILDLIFE and MANAGEMENT INDICATOR SPECIES

Existing Condition

Federally Listed and Proposed Species

Proposed, endangered, threatened, and sensitive (PETS) species that were reviewed and could potentially be affected within or near the analysis area are listed in Table 4. The table information was obtained from the Routt National Forest, Land and Resource Management Plan table 3-19, pg.3-66, and table 3-48, pg.3-125. The table also lists rationale for providing further analysis or removing the species from review and analysis (see complete report on file).

Review of the District wildlife occurrence maps and G.I.S. database validated several current and historical species occurrences, which included: wood frog (no date), marten (1 no date, 2-1998), three-toed woodpecker (2-no dates), and goshawk (ca. 1996, 1997, 1998).

Field surveys for all species were conducted during the spring, summer, and fall of the years of historical analyses and during 1998 (Kit Buell, past USFS Biologist). I also completed field surveys during the summer of 2002. Surveys were primarily to validate habitat suitability assumptions, validate vegetation conditions, record random wildlife observations, and focus on specific species or habitat features.

Eight endangered species, listed in Table 4., will not be addressed due to the fact that the species have not been documented in the project area, nor does suitable habitat exist in the project area.

One species, Canada lynx (*Felis lynx canadensis*) has historically, potentially occurred in the vicinity. There is one known historical occurrence of Canada lynx just outside (Arapaho Creek GA) of the Troublesome Geographical Area but very near the TGA boundary at the Continental Divide. Otherwise, there have been no known occurrences of any other Federally listed Proposed, Threatened or Endangered wildlife species in the project area.

The Canada lynx received a "Threatened" status designation by the USFW in March, 2000. The lynx has been granted protected status as a non-game mammal in Colorado since 1971 and as a state endangered species since 1973.

A Canada lynx consultation package, addressing livestock grazing (in which the Troublesome, Pete Gulch, Monument and Grass allotments were included), was submitted to the USFW in May 2000. The grazing allotments received a "may effect, but are not likely to adversely affect" determination by previous USFS Wildlife Biologist, David Austin.

Direct, Indirect, and Cumulative Effects

Alternative 1. No Grazing

Direct: Because quantity and diversity of vegetative cover are relative to specific site and site conditions, the amount of available vegetation and cover may increase or decrease. There are other cumulative factors which would determine site productivity; such as, plant symbiosis, genetics, environmental influences, and plant physiology and morphology.

Indirect: Assuming that prey is available in the area of increased food and shelter, the prey base would most likely increase to carrying capacity of the vegetation. However, the grass/forb component alone that would initially inhabit the area does not provide the prey base of snowshoe hare, the preferred food of the lynx, but would provide a base of rodent and other small prey.

Cumulative: A flush of readily accessible prey could promote a concentration of predators, both lynx and other predators, which would briefly inundate the area. Any presumed habitat would be short-lived. Forest conditions could be modified, however the lack of grazing and the resulting habitat change alone, would not be sufficient enough to change suitable habitat to preferred habitat or change unsuitable habitat to suitable habitat with long term benefits.

Determination of Effect and Rationale

Implementation of a "no grazing" plan may cause short term, direct habitat impacts that "may effect, but are not likely to adversely affect" Canada lynx. Impacts that may occur include:

- A short term increase in prey abundance or availability caused by habitat alteration
- A shift in the community composition of small mammals from one suite of species to another suite

No other endangered, threatened, or proposed species are believed to be effected by the analyzed management action.

Alternative 2. Proposed Action

Direct: Vegetative species, composition, and structure would be maintained at current levels of use.

Indirect: Vegetative quantity and diversity will fluctuate during the growing/grazing season. A reduction in vegetative cover (shelter) and availability, diversity and vegetative amount may decrease the number of birds (prey), small mammals (prey), and insects (along with vegetation, a food source for the prey) that utilize the immediate area.

-Browsing or grazing can have a direct effect on snowshoe hare habitat if it alters the structure or composition of native plant communities. (Ruggiero et al. 2000a)

Conversely, an increase in vegetative quantity, diversity and structure should promote an influx of prey species and favorable habitat conditions that is considered desirable lynx habitat.

Cumulative: Planned, managed, grazing activities would temporarily modify existing forest conditions, however modifications would not be drastic enough to change suitable habitat to non-habitat.

Determination of Effect and Rationale

Implementation of the proposed grazing plan may cause short term, direct habitat impacts that **may effect, but are not likely to adversely affect** Canada lynx. Short term adverse or beneficial impacts that may occur include:

- A decline in prey abundance or availability caused by habitat alteration
- A shift in the community composition of small mammals from one suite of species to another suite

It is doubtful that livestock grazing would permanently alter or convert lynx habitat to unsuitable conditions given the Routt Land and Resource Management Plan (LRMP) standards and guidelines that protect or enhance habitat conditions for wildlife and native plant communities (LRMP pg. 1-9, 2-39 to 2-49). In addition, annual management plans may be amended to provide protection measures if areas are in need of mitigations. Therefore, by meeting the standards and guidelines direction in the Routt LRMP and in the Canada lynx Conservation Assessment and Strategy, grazing would have a **may effect, but are not likely to adversely affect**, determination.

No other endangered, threatened, or proposed species are believed to be effected by the analyzed management action.

Sensitive Species

Effects analysis will include only sensitive species that are *known* to occur, or are *present* and have suitable habitat in the area, or species with an *unknown* presence, however suitable habitat is available in the TGA.

Domestic livestock rarely use these forest communities and if they do, it is primarily for shade and has no impact on the habitat requirements for the sensitive wildlife species associated with forested communities. The exception may be for some species associated

with ponderosa pine where some grazing does occur. The flammulated owl is an insect feeder and livestock grazing does not effect their prey base. Some goshawk nesting occurs in ponderosa pine and while grazing does not affect reproductive habitat, it could affect the habitat for some of the prey base. These effects are not known to be significant and the goshawk has a fairly diverse prey base. Livestock grazing has **no impact** on goshawks, or any other sensitive wildlife species identified within the shaded areas in Table 5 (see complete report on file).

Direct, Indirect, and Cumulative Effects

Alternative 1. No Grazing

Direct: Because quantity and diversity of vegetative cover are relative to specific site and site conditions, the amount of available vegetation and cover may increase or decrease. There are other cumulative factors which would determine site productivity; such as, plant symbiosis, genetics, environmental influences, and plant physiology and morphology.

Indirect: Assuming that prey is available in the area of increased food and shelter, the prey base would most likely increase to carrying capacity of the vegetation.

Cumulative: A variety of species, relative to the habitat component that is available at the time, may inhabit the area. A flush of readily accessible prey could promote a concentration of predators that would briefly inundate the area. Any presumed habitat would be short-lived. Forest conditions could be modified, however the lack of grazing and the resulting habitat change alone, would not be sufficient enough to change suitable habitat to preferred habitat or change unsuitable habitat to suitable habitat with long term benefits.

Determination of Effect and Rationale

A livestock **no grazing** alternative **May adversely impact individuals, but not likely to result in a loss of viability on the analysis area, nor cause a trend to federal listing or a loss of species viability in the TGA** on goshawks, or any other sensitive wildlife species identified within the shaded areas in Table 5.

Alternative 2. Proposed Action

Direct: A reduction, in vegetative cover (shelter) and availability, diversity and vegetative amount may decrease the number of birds (prey), small mammals (prey), and insects (along with vegetation, a food source for the prey) that utilize the immediate area.

-Browsing or grazing can have a direct effect on snowshoe hare habitat if it alters the structure or composition of native plant communities. (Ruggiero et al. 2000a)

Indirect: Habitat reduction or loss of vegetation may promote the loss of a species food and cover source.

Cumulative: Planned vegetation management activities would modify existing forest conditions, however modifications would not be drastic enough to change suitable habitat to non-habitat.

Determination of Effect and Rationale

Livestock grazing has **no impact** on goshawks, or any other sensitive wildlife species identified within the shaded areas in Table 5 (see complete report on file).

Management Indicator Species

Two MIS species selected for this analysis are: American marten and Rocky Mountain elk. The rationale for selecting these two animals is:

- populations of these two animals are sufficiently large enough to be useful indicators of environmental change
- monitoring procedures are currently in place and regularly scheduled.

American Marten (*Martes americana*)

The marten is designated as a sensitive species in Forest Service Region 2 and the Routt Forest identified it as a management indicator species as well. The marten's selection as a Forest MIS species reflects its dependence on mature to over-mature forest stands with high structural complexity, including understory vegetation and coarse woody debris. Marten appear to be thriving in forest areas in and near the action area. According to Colorado Division of Wildlife (CDOW), Terrestrial Biologist, Jim Hicks, marten populations are stable (personal communication 11/6/02).

Surveys for marten have been conducted on the Routt National Forest since 1994. These surveys now employ the protocol established in *American Marten, Fisher, Lynx, and Wolverine: Survey Methods for Their Detection* (Zielinski and Kucera 1995). To date, marten have been detected regularly at baited camera-trap stations placed across the Forest during winter. Marten numbers will continue to be monitored in the future through use of camera-trap stations and tracks transect surveys.

Rocky Mountain Elk (*Cervus elaphus*)

The Forest Plan identifies elk as a management indicator species, due in part to its importance in Colorado as a hunted big game animal. Elk habitat use within the analysis area occurs at all times of year, with south facing slopes having particular importance during winter.

The Colorado Division of Wildlife (CDOW) monitors elk populations annually by monitoring hunter success and by conducting summer aerial counts. Elk are at high

population numbers throughout Colorado and numbers of elk in and near the Routt National Forest are currently 30-40% above herd objectives that are established by the CDOW (personal communication 11/6/02).

Environmental Consequences

American Marten

Alternative 1. No Grazing

Direct: Because quantity and diversity of vegetative cover are relative to specific site and site conditions, the amount of available vegetation and cover may increase or decrease. There are other cumulative factors that would determine site productivity, such as, plant symbiosis, genetics, environmental influences, and plant physiology and morphology.

Structural complexity, species composition and diversity would most likely improve. As the trees and other vegetation mature over the next several decades, stand complexity should improve there-by improving marten habitat.

Indirect: Assuming that prey is available in the area of increased food and shelter, the prey base would most likely increase to carrying capacity of the vegetation. Even though, the grass/forb component that will initially inhabit the area will provide a base of rodent and other small prey, the structural diversity will still be lacking for several decades.

Cumulative: A flush of readily accessible prey could promote a gathering of marten, which may utilize the area. Any presumed habitat would be short-lived. Forest conditions could be modified, however the lack of grazing and the resulting habitat change alone, would not be sufficient enough to change suitable habitat to preferred habitat or change unsuitable habitat to suitable habitat with long term benefits.

Alternative 2. Proposed Action

Direct: A reduction, in vegetative cover (shelter) and availability, diversity and vegetative amount may decrease the number of birds (prey), small mammals (prey), and insects (along with vegetation, a food source for the prey) that utilize the immediate area.

Indirect: A reduction in vegetation and cover would remove the habitat that the rodents/prey (the food source for the marten) utilize.

Cumulative: Planned, managed, grazing activities would modify existing forest conditions, however modifications would not be drastic enough to change suitable habitat to non-habitat, nor be sufficient enough to change suitable habitat to preferred habitat or change unsuitable habitat to suitable habitat with long term benefits.

Rocky Mountain Elk

Alternative 1. No Grazing

Direct: Because quantity and diversity of vegetative cover are relative to specific site and site conditions, the amount of available vegetation and cover may increase or decrease. There are other cumulative factors that would determine site productivity, such as, plant symbiosis, genetics, environmental influences, and plant physiology and morphology.

Structural complexity, species composition, and diversity would most likely improve.

Indirect: Removal of cattle from this allotment would allow for grassland vegetation to grow with little grazing pressure, as elk are primarily concentrated at the higher elevations during this period. The improved forage would then be available for the big game species as they move down to the lower elevations in the fall.

Cumulative: Structural complexity, species composition and diversity would most likely improve, however long term benefits would be questionable as most likely elk will saturate the area, overall reducing the amount of vegetation available for food and cover.

In summary, grazing treatments cumulatively added to recently past and reasonably foreseeable grazing activities would likely cause:

- A short term decrease or increase in prey abundance or availability
- Habitat alteration at different times and over an extended area that simplifies forest structure needed for foraging and dens
- Long term foraging and denning habitat changes, neutrally, beneficially or detrimentally in the action area
- A reduction in hiding cover and feed availability
- A beneficial or detrimental shift in species (mammalian, avian or plant) composition

Alternative 2. Proposed Action

Direct: Elk are grazers and generally prefer to eat lush grasses and forbs. The specific diet for elk in a particular locality, though, is largely determined by season and what palatable forage plants are available. However, elk show a clear preference for grass-like plants, primarily sedges, when these plants are available (Hoover and Wills 1984).

Indirect: Elk preferred grazing areas may not be available, forcing movement or habitat selection by elk, elsewhere.

Indirect: Elk preferred grazing areas may not be available, forcing movement or habitat selection by elk, elsewhere.

Cumulative: Cattle grazing will remove much of the forage that elk utilize in the early fall period as they migrate off of the forest. This lower amount of forage may cause some big game to leave the forest early. Derogative impacts are not expected to elk, as elk are somewhat of a generalist and find suitable habitat throughout the analysis area. Elk

numbers currently exceed CDOW objectives.

SENSITIVE, THREATENED & ENDANGERED PLANTS

Existing Condition

The Troublesome Analysis Area has no known occurrences or potential habitat for plant species formally listed or officially proposed under the Federal Endangered Species Act (USFWS 2003; CNHP 2003; Spackman *et al.* 1997; Green 1997). The following species were considered but not evaluated in this report:

- *Astragalus osterhoutii*, Ousterhout milkvetch (Endangered)
- *Penstemon penlandii*, Penland beardtounge (Endangered)

Species Evaluated in This Report:

The Analysis Area has potential habitat for one plant species that is a candidate for listing as threatened or endangered under the Federal Endangered Species Act (Spackman *et al.* 1997; Species Conservation Project 2003; Green 1997):

- *Botrychium lineare*, slender moonwort (Candidate Threatened): Grassy slopes, among medium-height grasses, along edges of streamside forests.

No Region 2 Forest Service sensitive plant species listed on the 1994 regional foresters sensitive species list are documented within the Troublesome Allotment Analysis Area (CNHP 2003). The Analysis Area has potential habitat for 2 Forest Service Sensitive plant species (Spackman *et al.* 1997, Species Conservation Project Website 2003; Green 1997):

- *Cypripedium fasciculatum*, Clustered lady's slipper orchid
- *Ipomopsis aggregata ssp. weber*, Rabbit Ear's Gilia (Sensitive)

Environmental Consequences

Direct effects

Evaluated Species Information

Botrychium lineare, slender moonwort (Candidate Threatened)

No direct effects to slender moonworts are expected to occur as a result of livestock grazing within the Troublesome Analysis Area since there are currently no populations known to occur on the Medicine Bow-Routt National Forest.

Cypripedium fasciculatum, clustered ladyís slipper orchid

No occurrences of clustered ladyís slipper orchid are documented within the Troublesome Analysis Area, however, suitable habitat does exist where grazing impacts could occur. *C. fascicuulatum* occurs in dry to moist upland lodgepole pine forest and less frequently in spruce fir forests from 8,000 ñ 10,500 feet in elevation (Spackman *et al.* 1997). It is frequently found in partial sun on northerly slopes and on level stream terraces within the lodgepole pine/grouse whortleberry plant communities. Such habitats represent a variety of substrates and vegetation types that are extensive, though discontinuous, throughout the Troublesome Analysis Area. Because there was no field reconnaissance conducted for this species specific to the Troublesome Analysis Area we will assume its presence.

Harrod (1994b) and Knecht (1996) found activity that exposes or damages the rhizome appears to kill the plant. Physical disturbance of occupied sites may affect the mycorrhizal fungus. Stoutamire (1991) reports that the adventitious roots of *Cypripedium candidum* are particularly sensitive to disturbance. He found that damaged roots are slow to repair and are replaced slowly from the most recently produced rhizome sections.

Clustered ladyís slipper orchid finds habitat in dry to moist upland lodgepole pine forests and less frequently in spruce fir forests from 8,000 ñ 10,500. There is little forage in this habitat locally, and cattle are not likely to frequent or concentrate in these areas (Proctor, pers obs.). Consequently, there is little chance of grazing impacts or trampling damage to this plant from cattle.

Indirect Effects

No indirect effects to clustered ladyís slipper orchid are expected to occur as a result of livestock grazing within the Troublesome Analysis Area.

Cumulative Effects

Alteration of clustered ladyís slipper orchids habitat (forest structure and micro climate) through the removal of the overstory vegetation and/or direct mechanical damage to plants from trampling or mechanized equipment appear to be the principal threats to this species. Forest structure appears to provide important microclimatic conditions for *C. fasciculatum* sites. Modification of forest structure (for example, canopy removal) has a profound effect on interior microclimates such as temperature and moisture (Chen *et al.* 1993, 1995), and ground level vegetation (Chen *et al.* 1992; Frost 1992). Greenlee (1997) reports a drop of 58 plants to 2 plants after a blowdown on the Nez Perce NF in Idaho. Activities that remove canopy in large areas or patches close to *C. fasciculatum* populations could alter the microclimate of nearby sites by creating edge effects. Depending upon distance and exposure, there could be changes in several microclimate

variables such as air temperature, relative humidity, soil temperature, and moisture, which could impact *C. fasciculatum* (Chen 1995).

Wild fire and prescribed burns can have varying effects on *C. fasciculatum*. Low intensity fire that does not eliminate the duff layer or destroy the canopy appears to have no adverse impact on *C. fasciculatum* (Harrod and Knecht 1997). In some cases, it appears to have benefited the species (Knorr pers comm.). High-intensity fire that eliminates the duff layer also destroys *C. fasciculatum* rhizomes (Harrod and Knecht 1997).

These management actions have occurred in the past and it is reasonably foreseeable that these actions will continue to occur within suitable habitat for clustered lady's slipper orchid in the future.

Determination

Since livestock are not likely to frequent or concentrate in these areas, there is little chance of grazing impacts or trampling damage to this plant from cattle. Assuming mitigation and assuming presence the proposed action may adversely impact individuals, but would not likely result in a loss of viability on the planning area, nor cause a trend to federal listing, or a loss of species viability range-wide.

Ipomopsis aggregata ssp. *weberi*, Rabbit Ears Gilia

No occurrences of Rabbit Ear's gilia are documented within the Troublesome Analysis Area, however suitable habitat does exist. This species typically occurs in "openings, in coniferous forest" (WYNDD 2003, Grant and Wilken, 1986) or from south-facing slopes and ridges dominated by *Artemisia tridentata* or brushy *Amelanchier/Chrysothamnus/Purshia/Prunus* stands on gravelly, clay-loam soils.

Direct Effects

Ipomopsis aggregata ssp. *weberii* is a tap rooted biennial herb with stems 15-60 cm tall (WYNDD 2003). If Rabbit Ears gilia populations were found in the analysis area they would be considered important to the geographical distribution of the species. There is little basic information on the biology and natural history of this plant, so responses to different types of disturbances are not known.

Through mitigation, over the course of the summer a full time rider will distribute the livestock throughout the allotment according to the rotation schedule. This measure would avoid extended and concentrated livestock use in any one area within the analysis area including potential habitat for Rabbit Ears gilia.

Indirect Effects

Introductions of exotic species within suitable habitat for Rabbit earís gilia could occur as a result of habitat disturbance caused by livestock grazing. If exotic species are introduced in occupied locations, Rabbit Earís gilia plants or whole populations could become displaced. Because there are currently no occurrences known within any of the allotments, this effect is speculative.

Cumulative Effects

Because this species appears to be at least somewhat tolerant of disturbance, activities that cause light to moderate ground disturbance are not likely to significantly impact populations. Activities that cause heavy or sustained ground disturbance and/or habitat removal such as road and trail building and maintenance, development, and operations involving heavy machinery could negatively affect individuals or whole populations. Herbicide treatments could also negatively effect individuals or whole populations of Rabbit Earís gilia.

Determination

Because Rabbit Earís gilia appears to be somewhat tolerant of disturbance it is unlikely that light to moderate grazing would significantly impact populations of this species. Assuming mitigation and assuming that *Ipomopsis aggregata* ssp. *weberi* is present in the analysis area, the proposed action may adversely impact individuals, but would not be likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range wide.

LOCALLY RARE PLANTS

PRE-FIELD REVIEW:

The Troublesome Analysis Area has no documented occurrences of locally rare plants and/or those plant species, which are tracked by Colorado Natural Heritage Project (CNHP 2002).

Plant species ìCurrently Proposedî for the 2003 R2 Sensitive species list that are known to occur nearby, but not in the analysis area:

- ***Cylactis arctica* ssp *acaulis*-Nagoon Berry/Dwarf Raspberry (G5, T5, S1, Proposed FS-Sensitive 2003). Recommendation:** Survey for this species and document any effects related to livestock grazing.

Plant species ìCurrently Proposedî for the 2003 R2 Sensitive species list that are NOT known to occur nearby, but could have potential habitat in the Troublesome Analysis Area (Spackman *et al.* 1997, Species Conservation Project Website 2003):

- *Astragalus leptaleus*

- *Botrychium multifidum*
- *Parnassia kotzebuei*
- *Selaginella sellaginoides*

Locally rare plants that are found nearby and have potential habitat in the Troublesome Analysis Area (Spackman *et al.* 1997, Species Conservation Project Website 2003):

- *Astragalus bodinii*-Bodin Milk Vetch (G4, S2):
- *Cryptogramma stelleri*-Slender Rock Brake Fern (G5, S2, BLM Sensitive)

FIELD RECONNAISSANCE:

Survey Intensity: No field surveys have been conducted which are specific to the Analysis Area for the plant species mentioned above. Colorado and Wyoming Heritage Program databases were consulted for the most recent occurrence information for the species evaluated in this report (CNHP 2003; WYNDD 2003).

A rare plant inventory occurred in the general area in the summer of 2000 but was non-specific to the Troublesome Analysis Area.

RECOMMENDATIONS:

Cylactis arctica ssp *acaulis*-Nagoon Berry/Dwarf Raspberry (Proposed FS-Sensitive 2003) has a moderate likelihood of occurring within the Troublesome Analysis Area where impacts associated with livestock grazing could occur. This species is easy to identify and could be inventoried by non-botanist personnel. Effects associated with livestock grazing on this species should be documented.

Due to the poor access, knowledge of the botanical resources that occur in Troublesome Analysis Area is lacking. Future rare plant inventories of this area should consider the plant species mentioned above.

NOXIOUS AND UNDESIRABLE PLANTS

Existing Condition

Cirsium arvense (Canada Thistle) is fairly common throughout the Forest and is known to occur in the Analysis Area. *Cardus nutans* (Musk Thistle), *Chrysanthemum leucanthemum* (Oxeye Daisy), are likely to occur in the area and are known to occur near the area. There is potential for other noxious and invasive species such as *Centaurea maculosa* (Spotted Knapweed), *Centaurea repens* (Russian Knapweed), *Euphorbia esula* (Leafy Spurge), *Cardaria chalepensis* (White top), and *Linaria vulgaris* (Yellow Toadflax) to occur. A program of detection and rapid treatments for noxious weeds is in place for much of Grand and Jackson counties. The Parks District is in cooperation with

Grand and Jackson counties under cooperative weed management plans to employ the principles of Integrated Pest Management to control noxious weeds on public lands.

Desired Condition

The desired conditions for noxious and invasive species is the same as that for upland range sites and riparian areas. That is for the sites to be composed of grass, forb, and shrub species that are naturally suited to the site. See desired condition for those environments above.

Environmental Consequences

Access to and multiple use (i.e., hunting, mapping, wildlife viewing, livestock grazing, etc.) of public land within the allotments provide many more opportunities for noxious weeds to be introduced. However, wind, water, and wildlife species are other ways that noxious weeds can be introduced. It is important to identify and document the occurrence of noxious weeds when they are found because they can infect healthy rangelands. The land practices and uses by the livestock operator and their weed control efforts will aid in the identification of noxious weeds and reduce the potential of noxious weeds occurring within the grazing allotments. The Forest Service will conduct outreach efforts to educate all users of public lands about noxious weeds and other undesirable plants. The proposed action should reduce the opportunity of invasive and undesirable species to invade and spread under existing multiple use. The shift in season and intensity of use (from the alternating rotation each year, and livestock movement from riders) should result in lower impact on the vegetation. This will provide an opportunity for native vegetation to regain vigor and compete against invasive weeds and undesirable vegetation.

Without being able to predict elk and deer use in the area without livestock grazing, the effects from the no grazing alternative is that the vegetation will likely maintain vigor and compete against invasive weeds and undesirable vegetation.

HERITAGE-CULTURAL RESOURCES

Existing Condition

In 1999, Routt National Forest archaeologists performed a sample cultural resource survey of Troublesome, Grass, Monument, and Pete Gulch Allotments within the Troublesome Analysis Area (Webmoor 2001). Following the *Memorandum of Understanding among the Rocky Mountain Region of the U.S.D.A. Forest Service and the State Historic Preservation Offices of Colorado, Wyoming, South Dakota, and Nebraska regarding Rangeland Management Activities* of 1996 (Range MOU), 774 acres were surveyed for cultural resources. Although the four allotments in the analysis area contain 70,042 acres, the acres suitable for livestock were determined to be about 8,700 acres and about 9,307 acres were identified as having high potential for cultural resources. These

two areas overlap on 2,683 acres in the analysis area. Within this area, 756 acres was surveyed during this project and 18 acres were surveyed during previous projects.

Environmental Consequences

Alternative 1. No Grazing

If there is no federal action, then there is no undertaking, as defined in 36 CFR 800.2(o), for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The no grazing alternative has no potential to affect cultural resources.

Alternative 2. Proposed Action

The current management alternative has the potential to affect cultural resources, though compliance with the National Historic Preservation Act was completed through the Range PA and consultation with the SHPO following 36 CFR 800.14.

Cumulative Effects

The loss of archaeological resources has happened in the past and will happen in the future. The cumulative effect is that over time fewer archaeological resources will be available to learn about past human lifeways, to study changes in human behavior through time, and to interpret the past to the public. Since only a sample survey was conducted, it is possible that important cultural resources could be affected by grazing and related actions, but the project complies with Section 106 of the National Historic Preservation Act through the Range PA and SHPO consultation. The education and discovery stipulation has the potential to reduce those effects by requiring all persons associated with operations under the authorization to report cultural resources to the Forest Service.

Irreversible and/or Irretrievable Commitment of Resources

There are no irreversible and/or irretrievable commitment of resources associated with implementing the proposed alternative described in this environmental assessment, and/or identified in the Forest Plan FEIS.

Forest Plan Consistency

This project is consistent with the *Routt National Forest Land and Resource Management Plan of 1997* for the heritage program since compliance with the National Historic Preservation Act was completed through the Range PA and consultation with the SHPO following 36 CFR 800.14.

SOCIAL AND ECONOMIC

The management of the Routt National Forest affects local economies. This effect is analyzed and disclosed in the EIS that accompanies the Routt Forest Plan. See chapter 3 of the Forest Plan EIS for a description of the employment composition and the affect or potential impact to each county due to management of the Routt National Forest. The value of the permitted livestock numbers are minor in relation to the overall economic outputs of the local economy. However, it is recognized that the permitted use is important to the individual permittee's overall livestock operation.

Although the revenue generated from grazing fees on all four allotments (<\$2,000) is less than the annual cost of administering the grazing permits and monitoring the range (>\$2,500), under the No Action alternative there are costs (monitoring activities) but no benefits (AUMs of forage and grazing fee receipts). The grazing fees received through the proposed alternative will net a negative number (benefits), but there is some revenue generated that will cover part of the costs.

The cost/benefit ratio for the Forest Service is not a realistic measure of the success of the program. Three of the main objectives of Forest range management program is to: manage vegetation to protect basic soil and water resources, provide for ecological diversity; provide for livestock forage, wildlife food and habitat, outdoor recreation, and other resource values; and, contribute to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood (FSM 2202.1). Additionally, it is the objective of the Routt National Forest to maintain all rangelands in satisfactory condition (Forest Plan EIS), and manage forage for livestock and wildlife based on specific habitat-area objectives identified during allotment management plan revision (Forest Plan Revision, 1997).

General public perception and the rewards of open space provided by the ranching industry have provided a large intangible 'benefit' for aesthetics and quality of life, which is difficult to tie to a 'number-driven' benefit/cost analysis. When evaluating trade-offs, the use of economic efficiency measures is one tool used by the decision maker. Many things cannot be quantified, such as effects to wildlife and forest health. The decision maker takes many factors into account in making the decision.

There are many factors that influence and affect the local economies. Population growth, economic growth, and the economic diversity and dependency of individual counties and communities all affect local economies. This project is not expected to add to any existing cumulative effect.

The effects to the social environment will depend on the degree that the permittee's livestock operation relies on the Forest Service grazing permits. In cases where the Forest Service permit provides for the majority of the summer forage base, as is the case for the Troublesome and Monument allotment permittee, the no action alternative would force the permittee to secure summer pasture on private property. Private pasture costs are 7 to 10 times more expensive than that found on public lands. It is not likely that a family owned livestock operation could survive having to pay for summer pasture on

private land. On the other hand, the income generated from the local rancher, which is possible, in part, as a result of public land grazing, will trickle through the local economy providing economic opportunities for other members of the community.

The nature of the local community, in general, is not likely to be adversely effected by the loss of one family owned operation, but if a considerable number of permittees could not graze on public land, the effects on the local economy and community structure would be largely negative. However, livestock grazing on Forest Service lands is one of several multiple uses stated in the Multiple-Use Sustained-Yield Act of 1960, the National Forest Management Act of 1976, and other laws governing resource management on public lands. One of the overall Forest objectives is to assist local governments in developing specific programs that promote economic stability (Forest Plan Revision, 1-2).

Other Effects Considered

Human Health and Safety

None of the alternatives will have an adverse direct, indirect, or cumulative impact on human health or safety.

Wild and scenic rivers, wetlands, floodplains, or ecologically critical area

There are no wild and scenic rivers, or ecologically critical areas located in the Rabbit Ears Allotment. However, the Troublesome Basin is included in a proposed wilderness bill introduced by Colorado congressman Diana DeGette. Livestock grazing is an acceptable and appropriate use in wilderness areas (The Wilderness Act 1964, Forest Plan Revision 1997). Therefore, none of these areas will be affected. There are wetlands located within riparian areas and some seeps and springs. Floodplains also occur. These areas will be protected from significant adverse impact by implementing the Forest Plan standards and guidelines.

Short-term Uses Versus Long-term Productivity

For this project, implementation of the standards and guidelines as outlined in the FEIS for the Forest Plan will provide for continued long-term site productivity by maintaining stable and productive ("healthy") soils. Maintenance of stable and productive soils, in terms of organic matter content and soil structure, is a key prerequisite to maintaining healthy ecosystems. Long-term productivity depends on maintaining all of the most basic ecosystem resources, and their function.

Irreversible and/or Irretrievable Commitment of Resources

There are no irreversible and/or irretrievable commitment of resources associated with implementing the action alternative described in this environmental assessment, and/or identified and described in the Forest Plan FEIS.

Unavoidable Adverse Impacts

A description of these impacts is discussed in Chapter IV of the Forest Plan EIS (pgs. 187-189). No additional site-specific adverse impacts that cannot be avoided were identified during analysis, or are known to exist.

CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Joanne Sanfilippo	Archeologist
John Proctor	Botanist
Kathy Foster	Fisheries Biologist
Denise Robertson	GIS Coordinator
Liz Schnackenberg	Hydrologist
Melissa Martin	NEPA Coordinator
Mike Alpe	Rangeland Management Specialist
Tina Lanier	Recreation Program Leader
Tommy John	Soil Scientist
Marcia Pfleiderer	Wildlife Biologist

FEDERAL, STATE, AND LOCAL AGENCIES:

USDA Forest Service
Colorado Division of Wildlife
US Fish & Wildlife Service
Colorado Natural Heritage Program Data Center Records

TRIBES:

Southern Ute Tribe

OTHERS:

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Colorado Wild, Rocky Smith

Curry, Marilyn

Curry, Richard

Curry, Thomas

Funk, Wendell

Grand County Board of Commissioners

Hill, Jodi and Sandy

Lariviere, Edward P.

Linke, Eddie and Lorene

Minnick, Danny

Parri, David

Peterson, Carol and Pete

Western Colorado Congress, Christi Ruppe

ZD Land & Cattle, Rick Wahl

APPENDIX A

In response to public comments on the proposal, mitigation measures were developed to ease some of the potential user conflicts and livestock impacts the various alternatives may cause. The mitigation measures may be applied to the proposed alternative.

Mitigations Specific to Amphibians

1. High potential amphibian habitat would be surveyed to determine areas of critical habitat. This is needed to confirm or deny the presence of amphibian species.
2. If breeding sites are found and it is determined that livestock grazing operations would negatively affect the site, then operations would cease in that area until
3. Maintain vegetative cover requirements necessary to meet the recovery needs of the boreal toad; locate and protect toad movement corridors from impacts of livestock grazing.
4. Limit interaction between livestock and amphibians during critical periods. In known occupied breeding sites, minimize concentrations of livestock in breeding habitat throughout the breeding season. If livestock are retained on breeding habitat, initiate monitoring studies to determine effects on amphibians. Critical periods depend on the progression of snowmelt at different elevations but generally occur from May through July. Newly metamorphosed frogs and toads may be present in the vicinity of the breeding site from late July to about mid September.

Mitigations Specific to Heritage-Cultural

The Troublesome Creek Trail #56 (5GA2642) is a stock trail that is eligible to the National Register of Historic Places. This trail continues in its original use as a cattle trail. Any actions that could have the potential to change the character, location, or setting of the trail would need to comply with Section 106 of the National Historic Preservation Act. Forest Service employees should keep the heritage staff informed if erosion or anything else that may potentially modify the trail. A map of the site is available on request.

Pre-Implementation Site Re-evaluations

A flaked stone scatter (5GA2646) needs to be tested to determine eligibility to the NRHP. Two cattle trails cut through this site and active livestock grazing is evident on site. This site should be tested to determine eligibility to the NRHP. If the site is determined eligible and the SHPO concurs, the effects from cattle grazing will need to be resolved in consultation with SHPO. If the site is determined to be not eligible, then no further work is needed. A map of the site is available on request.

Pre-Implementation Survey

If any new actions are planned that were not specifically identified in this report, such as if grazing patterns change, livestock numbers increase, or ground disturbance becomes necessary for range improvements, additional cultural resource assessment is required to determine if additional survey is needed prior to implementation.

Haystack Drainage Between Long Draw and East Fork

Due to the high density of prehistoric sites in the vicinity and the limited area surveyed for cultural resources, the permittee should work to keep livestock out of Haystack Drainage between Long Draw and East Fork, including keeping mineral blocks and other livestock attractions out of the drainage.

Erosion Reporting

To mitigate the effects of erosion stemming from livestock grazing on cultural resources, Forest Service personnel need to report substantial erosion to archaeologists.

Discovery and Education

All persons associated with operations under this authorization must be informed that any objects or sites of cultural, paleontological, or scientific value such as historic or prehistoric resources, graves or grave markers, human remains, ruins, cabins, rock art, fossils, or artifacts shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization any of the above resources are encountered, the proponent shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the Medicine Bow-Routt National Forest authorized officer of the findings. The discovery must be protected until notified in writing to proceed by the authorized officer (36 CFR 800.110 & 112, 43 CFR 10.4).

Mitigation Specific to Wildlife

Threatened, Endangered, Sensitive Species, and Wildlife Standards

Where discovered threatened, endangered, proposed, or sensitive species habitat is identified, conduct an analysis to determine if any adjustments in the forest plan are needed.

Manage activities to avoid disturbance to sensitive species, which would result in a trend toward Federal listing or loss of population viability. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components, and other pertinent factors. Give special attention during breeding, young rearing, and other times, which are critical to survival of both flora and fauna.

Summary of Biological Evaluation, Legal and Administrative Framework

Sensitive Species

Sensitive species are those plant and animal species designated by the Regional Forester, where population viability is a concern on National Forests within the region. Sensitive species may also be those species whose current populations and/or associated habitats are reduced or restricted, those with habitats and/or populations are considered vulnerable to various management activities, and those requiring special emphasis to ensure that they do not move towards listing as threatened or endangered.

Identification and designation of sensitive species and emphasis on the management of sensitive species habitat are Forest Service policy and not directly related to federally designated threatened and endangered species under the Endangered Species Act and administered by the U.S. Fish and Wildlife Service.

Mitigation Specific to Sensitive, Threatened, and Endangered Plants

Through project design the following measures will avoid physical disturbance to *C. fasciculatum* vegetative parts and rhizomes from trampling:

Do not allow the placement of salt blocks in areas where populations of TES plant species are found.

Do not allow the construction of livestock watering sites within 200 yards of any reported populations of TES plant species.

Avoid the trailing of livestock within 100 yards of any reported populations of TES plant species.